Scientific Publications: The Role of Public Administrations in The ICT Era

Roberto Di Cosmo

ICT (Information and Communication Technologies) have radically changed the ecosystem of scientific publishing and have sparked a growing conflict of interest between the publishing houses on the one hand and all the other players on the other. After an in-depth analysis of the minimum requirements of a scientific publishing system and the divorce that is taking place between authors, users, and publishing houses due to the ICT driven revolution, this article describes what the scientific community can do, and in fact has already started to do, to free themselves from the now unjustified yoke imposed by the publishing houses. But all of this would be in vain without an immediate, clear, and determined intervention from Public Administrations, which we would ask to have the political courage to define public policies in order to place in the public domain what has been out of it for too long. We ask this for the sake of the common good, and have put together a specific proposal that would require no extra funding and that would not be limited to the so-called 'hard' sciences, but would aim to address a problem that has already spread to all areas of research.

Keywords: Copyright, Open Access, Public Policies, Scientific Publishing.

1 Introduction

In official speeches, in the media, even in corridor conversations, we often hear people singing the praises of ICT[1] in the most extravagant terms. These technologies, they say, provide all we need to make our students more intelligent and our researchers more competitive.

We can only rejoice in the fact that there is finally an awareness of and a willingness to deploy technologies that, for the first time in the history of Humankind, have the potential to allow knowledge to be shared without distinction between north and south, rich and poor. Information and communication technologies provide us with the ability to globalize this miraculous phenomenon that is the transfer of knowledge from teacher to student, this unique moment when the giver not only enriches the receiver without impoverishing himself but, on the contrary, is enriched by the exchange with his students. But it has to be said that, when all the talking is done, the day to day use of ICT in research and education does not always redound to the benefit of researchers, teachers, and students. The truth of the matter is that, if the great promises offered by ICT are actually to be delivered, a radical change is required in the way a number of activities essential to research and education, and especially to scientific publishing, work. Such a change cannot occur without a clear awareness of the radical difference there is between the requirements and purpose of scientific publishing and those of the world of 'entertainment' publishing.

Until the use of ICT became widespread, scientific publishing was essentially a paper-based activity, a relatively costly process that was mostly in the hands of private companies. A happy combination of circumstances meant that their economic interests did not interfere too much, and in fact sometimes coincided, with the interests of the researchers, who are at the same time producers and consumers of scientific articles.

The generalized availability of computer-based tools for creating and disseminating scientific documents at a trifling cost has completely changed the outlook. Let us take scientific typography as an example: prior to the 80s the typesetting of a scientific formula was a long and expensive process that required a lot of shuttling back and forth between author and publishing house, whereas today most scientific publishing worldwide on the subject of computing, mathematics, or physics uses the freely available TEX system, the result of ten years' research by Donald E. Knuth[2]. Thanks to this system, the creation of typographically impeccable articles is within reach of everyone and the only trace of the previously sky-high cost of typesetting is to be

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[1] Information and Communication Technologies - as nobody wants to run the risk of appearing to be an ignoramus on the subject, the term NTIC (New Information and Communication Technologies) is no longer used.

[2] One of the founding fathers of modern computing.

found in the $ and $$ symbols which Knuth, who was well versed in traditional typography, used as delimiters of mathematical formulae: in TEX a formula such as $\int_a^b f(x)dx$ is produced by typing `$\int_ab f(x)dx$`, and the same formula in display mode,

$$\int_a^b f(x)dx$$

traditionally much more costly, was produced by typing `$$\int_ab f(x)dx$$`. However, as you can imagine, producing the second formula was no more of an effort for me than producing the first. This is also why the cost of producing quality scientific journals has been falling steadily; however, subscription rates of journals produced by private publishing houses are still shooting up[3]

In this article we try to identify the minimum requirements that a scientific publishing system should meet and explain how the emergence of ICT has revealed a divergence of interests between authors, users and publishing houses of scientific journals and has shattered the former fortuitous agreement that bound them together.

Such an analysis is essential if we are to understand why a change is necessary and whether the intervention of Public Administrations, through public policies, is desirable and, if so, in what form.

2 What Is Scientific Publishing?

The world of scientific publishing is very different, indeed fundamentally different, from the world of entertainment publishing. To begin with, for teacher-researchers and researchers the *publication* of the results of their research form part of their *purpose*, which means that the scientific community is a community in which everyone is not only a reader but also an author. More important still is the fact that publication is essential for *the advance of science*: the benefit expected from a publication is not a direct financial return on the 'sales' of an article but rather the broadest possible dissemination of its content so that the latest scientific discoveries may be available to other scientists as quickly as possible. And as the scientific community places such importance on *peer recognition* and researchers are judged by the influence of their publications, any barrier to the dissemination of an article creates a real "lost profit" for the author. This is why in all copyright transfer agreements the scientific publishing houses take great pains to explain, without ever really succeeding, that this transfer is made to 'speed up' the dissemination of the scientific article in question[4].

In this scenario, the sale price of an article is a *barrier* to the dissemination and therefore a *defect*: an ideal system would be one that permitted all scientific articles to have the widest possible dissemination at the lowest possible price. Such a system would not be so very different from Napster, Gnutella, Kazaa, or others like eDonkey, which are currently causing the Hollywood entertainment publishing lobbies (and not only them) to cry out in desperation, which proves, in case any doubt still remained, that scientific publishing and entertainment publishing are two very different activities.

2.1 What Does Scientific Publishing Need?

Having established the special nature of scientific publishing, we now need to consider what the scientific community *expects* from a publication system.

It is not difficult to draw up a shortlist of minimum requirements that a researcher would such a system to meet:

■ **Evidence of priority:** publication should allow us to establish the priority of a discovery.

■ **Integrity:** publication should ensure that no alteration is made to an article after its release[5].

■ **Widespread unimpeded dissemination:** publication should, as the word implies, be public and as accessible as possible, because

- the more disciples a researcher has, the greater his or her worth

- research is more effective if there is fast and unimpeded access to publications and their scientific content.

■ **Very long-term archival:** since the dawn of Humankind, the corpus of scientific and literary knowledge is considered to be part of the heritage of Humankind and as such should be preserved for all posterity: catastrophes like the burning of the library at Alexandria must not be allowed to happen again.

■ **Unique identifier:** the fabric of scientific knowledge

[3] A collection of very informative statistical tables on this subject are available at AMS's website (*American Mathematical Society*) [1]; see also Ted Bergstrom's studies [2].

[4] The argument used by the publishing houses runs more or less along these lines: "*if you scientists transfer us your copyright, we will be able to respond quickly to any requests from people or companies wishing to copying your work, which relieves you of the tiresome administrative burden of managing your copyright yourselves*". Naturally they are very careful to stress that the management of those rights is not at all tiresome if permission to reproduce the work in any form is granted from the outset. This is something that generally interests the author of scientific articles, whose most secret desire is for his or work to be copied, read, studied, and quoted by millions of students and researchers. Obviously some rare cases of plagiarism need to be dealt with, but the transfer of copyright to the publishing houses has played no part in resolving the few cases of plagiarism that this particular author has come across. Instead the scientific community itself has administered its own justice, by ostracizing the plagiarists and demolishing their academic reputation, a considerably harsher penalty in our world than to be found guilty of copyright infringement.

[5] This does not prevent any number of revisions being made, but it must be possible to make a clear distinction between the article as it was published on its date of release and any subsequent altered versions.

is an *ante litteram* Web that, as we have seen, is a long-term undertaking, one in which dangling pointers cannot be allowed to occur since the consequences of such broken links are far more serious than any that may result from the every day disappearance from the Web of so many ephemeral pages.

Before the emergence of ICT, these needs were reasonably well covered by traditional scientific publishing, with the indispensable contribution of the libraries, as we will come back to later, but this is no longer the case. In order to understand this change we need to look at how the roles of authors and publishing houses have evolved, before and after the arrival of ICT.

3 Authors and Publishing Houses: A Marriage Of Convenience Heading For Divorce

Before ICT, the roles in scientific publishing were clearly split between the scientists on the one hand and the publishing houses on the other. Let us remember how things used to be some years ago.

3.1 Authors, Publishing Houses, And Libraries Prior to ICT

Due to the very nature of scientific publishing, all scientific work was carried out by *the scientific community themselves*; it was they who had always performed the basic activities which are the real added intellectual value of this kind of publication:

■ **Content creation:** By content is meant the results of research work disclosed by its authors, who at the same time are the scientists who obtained these results. Most often these are the results of research funded directly or indirectly with public funds although in some cases it may be research funded by private companies. However, the author has heard of no case of research having been funded by the publishing houses.

■ **Reviewing and evaluation:** these activities, better known as refereeing or peer reviewing, can only be performed by recognized experts in the relevant field(s). Without wishing to enter a debate that goes beyond the scope of this article of this article, there is a difference of stature compared with literary 'criticism': owing to the increasingly specialized nature of science today, a scientific publishing house cannot simply rely on a number of in-house 'reviewers' as they alone could not guarantee the scientific quality of articles from such a wide range of subjects: biology, mathematics, computing, physics, etc.

■ **Scientific control:** the "editorial line" of a scientific journal is decided by the editorial committee which, for the same reasons as above, is made up of recognized scientific experts in their respective fields.

3.1.1 The Role of Publishing Houses before ICT

Before ICT, the publishing houses provided scientists with a number of ancillary services that were highly appreciated by the community, in particular:

■ **The typesetting** of articles, which was very costly at the time and was responsible for the high price of scientific journals.

■ **The dissemination of articles** among the scientific community was mainly facilitated by journals, to which libraries would subscribe at the request of their users.

■ **Evidence of priority and integrity** were (and still are) implicitly ensured by their release on printed paper, which provided the essential **unique identifier** necessary to build a coherent and lasting edifice of knowledge.

Finally, the prohibitive cost of publication acted (and continues to act) as an implicit **filter.** In practice the cost factor limited the number of publications in circulation and the number of articles published, which provided an 'external' mechanism for quality evaluation in the manner of a "programme committee", which was highly appreciated by some colleagues.

3.1.2 The Essential Role of Libraries

The way the situation is currently developing, *libraries*, together with authors, are the victims of the economic parasitism of publishing houses. And a librarian may often be more aware of this problem than most authors, since authors do not have to deal on a daily basis with the dramatic need to cancel, against their will, subscriptions that have become to too expensive due to the latest change in commercial policy of this or that publishing house.

At this point it is important to remember that, even before the notion of publishing house existed, libraries have always had two fundamental and vital roles. On the one hand they provide researchers with easy access to an important corpus of documents, access which has certainly been made even easier by the arrival of ICT, with its digitization and online availability certainly. But libraries have also guaranteed the **long-term archival** of knowledge since their inception, largely with public funding. As surprising as it may seem, many publishing houses do not maintain complete archives of their publications. A short while ago a major publishing house contacted university libraries to ask their permission to digitize documentary collections made up of journals whose copyright was held by this same publishing house and of which they no longer had a single copy!

In the race towards total technology it would be unwise to forget the importance of long-term archival and the classification of works, tasks which have been performed by libraries since the dawn of humankind and for which right now we have no electronic alternative.

3.2 What Changes with ICT?

With the arrival of ICT, and in particular of TEX and LATEX, and thanks to the generalization of the use of Internet, a number of tasks that had previously been performed exclusively by traditional publishing houses are now becoming the responsibility of the authors:

■ **Typesetting:** to a large extent it is the authors who are now responsible for typesetting, in the styles imposed by the publishing houses.

■ **Dissemination of articles** can now be carried out by

anyone, since ICT provides cheaper, faster, and much more effective means than traditional journals (web pages, meta-archives – [3][4] and in France [5][6]).

■ **Evidence of priority** is increasingly provided by adverts in mailing lists and the unique identifier is included in the servers of the best known publications, such as ArXiv.

■ **Filtering** of publications is on the wane in publishing houses: under the tyranny of business logic, publishing houses are obliged to offset the drop in the average circulation figures of journals (as a result of the growing specialization of research fields and their spiralling cost) with a veritable explosion in the number of journals published[6]. Paradoxically, the same business logic that pushes up the price of journals (and therefore reduces their dissemination and, ipso facto, their use) has ended up acting as a catalyst for the proliferation of journals.

If we compare the situation before and after the arrival of ICT, we can see that now scientific publishing houses are actually nothing more than mere *printers,* and this is the term we shall use to refer to them from now on. They now have nothing more to offer to the scientific community than what is intrinsically printed publication: on the one hand, a guarantee of integrity and on the other, a barrier (albeit imperfect) to the proliferation of publications due to their being prohibitively expensive. Is this enough to justify their existence for much longer?

This reshuffle has brought to light a number of underlying conflicts which have always existed between the interests of the authors and those of the printers who, we should remember, require authors to transfer, wholly and free of charge, the **copyright** of their work before they will accept an article for publication, when a simple non-exclusive permission to publish would be more than sufficient. When this practice first began, as authors had no other means by which to disseminate their work, nobody raised any objection. Soon the printers' hypocrisy reached lyrical heights in the wording used to justify these copyright transfers in the forms that the authors had to sign: we were told that copyright transfer was necessary to "*facilitate a more widespread dissemination*" of our work.

Now that ICT provides other effective means of dissemination, printers have had to abandon their lyricism for less ambiguous wordings, a more moderate example of which is set out below[7]:

"*The Author may publish his/her contribution on his/her personal Web page provided that […] it is clearly pointed out […] that the copyright for this contribution is held by [the Publisher]. From the Publisher's point of view, it would be desirable that the full-text version be made available from the Author's Web page only after a delay of 12 months following the publication of the book, whereas such to delay is not required for the abstract.*

The Author may not publish his/her work anywhere else *without the prior written permission of the publisher unless it has been changed substantially*"

This form of exclusive transfer of copyright is shown up for what it is: an obstacle to the free dissemination of scientific knowledge which in certain cases is tantamount to a **private appropriation** of publicly funded research.

4 Barriers to Change

One may then wonder why scientists continue to publish in traditional journals and this is where another latent conflict of interest rears its head: a scientist will always want to publish his or her articles in prestigious journals (or conference proceedings). However, while the prestige of a journal is based on the quality of its editorial committee (made up, as we have said, by scientists who are totally independent of the publishing house), the 'title' of the journal is registered in the name of the printer who owns it

It is therefore impossible for an editorial committee to appropriate this title, the stamp of quality by which a given scientific community identifies itself.

Editorial committees are thus the hostages of the printers in every respect. To escape from this influence requires an effort that not everyone is prepared to make, although there are milestone examples such as the case of "Journal of Logic Programming" (JLP), whose editorial committee left Elsevier en masse in late 1999 to join *Cambridge University Press* and set up "Theory and Practice of Logic Programming" (TPLP), a publication reborn from the ashes of "Journal of Logic Programming" which disappeared as a result of this defection and was replaced on library shelves by the new title which took over the numbering of the old JLP [7].

The printer is becoming increasingly less the useful and essential tool to drive scientific process that it once was and more a dangerous parasite of the system Printers impose absurd limitations on authors (a good example is the obligation for non-US authors to abide by such laws as the DMCA, *Digital Millennium Copyright Act*, if the printer is based in the USA or, worse still, the rejection of articles by scientists resident in any country under US economic embargo[8]):

■ they unashamedly raise the price of their journals in pursuit of the maximum possible profit (see *Declaring Independence* in [10] for an analysis of price trends between 1996 and 2000), thereby leaving libraries no option but to cancel their subscriptions and so provide an inferior service to the scientific community,

■ they claim property rights over rights that they have plundered from their true authors (photocopies made in an academic or research library are subject to an annual royalty payment to a copyright collection society[9]),

■ they charge for reading online the selfsame articles that they prohibit from appearing on the author's web pages.

[6] It is very edifying to see the year, volume and issue numbers of such a famous series as *Lecture Notes in Computer Science*.

[7] This text is taken from a form that the author had to sign recently.

[8] This has been the subject of much debate and set off a furore of protest among the scientific community in 2003 and 2004 [8][9].

In short, in the fields in which ICT are expected to deliver the promise to narrow the digital divide between libraries, countries, and continents by building the new universal, digital Alexandria, the printers are doing everything in their power to widen the existing rift solely for their own profit and contrary to the interests of *all* the other players.

Even from a strictly cynical and selfish point of view, it must surely be very interesting for privileged nations to ensure that the foreign students who are increasingly more important to their research can access the latest results and the most comprehensive documentation in their countries of origin, where they necessarily receive their initial education. However, the economic interests of the publishing houses prevent this from happening.

5 A Plethora of Initiatives

The ongoing divorce between printers and the scientific community (at the same time users and creators of the knowledge marketed by the printers) is even starting to have repercussions. For some years now there has been evidence of a growing mobilization of researchers and librarians, examples of which are the Budapest petition [16], the debate launched by "Nature" [17], the statement by the *Cornell University* library[10] [18][19] and, in France, the press release drafted by the sub-committee of the *Science Société* Group of the French Science Academy dated December 9, 2001.

Regardless of the positions of either party, the liveliness of this debate only goes to confirm the seriousness of the situation: everyone recognizes that scientific publishing has to undergo a profound change if it is to continue to be of use to the research community. Meanwhile, a plethora of initiatives are underway:

■ Libraries are pooling their "purchasing power" to negotiate better rates with printers, such as the Couperin consortium [20]

■ A proliferation of electronic scientific journals do not need printers to exist (examples in [21])

■ There are various virtual library projects including projects involving the digitization of ancient texts such as Numdam [22]

■ In Japan the pioneer project CiteSeer [4] has become a benchmark project for an entire community by meeting the needs of researchers with a system that automatically discovers, indexes, and archives scientific articles that are available on the Web before analysing the references between articles, thereby allowing researchers to follow the thread of a number of ongoing lines of research

■ Finally, there are large number of researchers who act individually as if copyright transfer to printers did not exist and therefore operate as "outlaws".

A good example of how the requirements of scientific publishing can be broken down and carried out by different agents is the case of preprint server, the best known of which is ArXiv [3]. This server, originally created to store and provide a unique identifier to preprints (articles that have not been subject to peer review by the scientific community) has become a privileged medium for overlay journals, electronic journals whose 'issues' are made up of references to articles deposited in ArXiv (see [23]). In this way, guarantee of quality and priority is provided by the editorial committee (as in, "Annals of Mathematics" for example), while dissemination, archival, and a unique identifier are all provided by ArXiv [3].

6 A Plan for The Future

If we want scientific publishing to change and adapt to this new era, we need to be looking for a scenario in which all the requirements of the scientists are met, without having to sacrifice the basic requirement of free access to knowledge.

Solutions within reach ...

Technical solutions already exist for most of the requirements we have identified. Here are a few of them (though the list is by no means complete):

■ **Priority, integrity:** in order to establish the priority of discovery any means of 'depositing' a version of the article on its publication date is valid. 'Depositing' does not need to be made by any physical means such as the physical printing of a journal.

Overlay journals are a clear example of a virtual 'deposit': the author sends an article, it is reviewed, and its final version is deposited in ArXiv which assigns it a unique identifier, cited by the electronic journal. This means that, while the journal exists (and it always will exist if it has been long-term archived), there will be proof that that article was published on that particular date and exactly as it appeared in the journal[11]. There are also private commercial initiatives that are looking into the idea of a 'stamp' certifying the priority and integrity of an electronic document[12].

■ **Widespread, unimpeded dissemination:** the adoption of a free licence specifically intended for scientific works[13] is essential if authors are to achieve the unimpeded dissemination of their works rather than blindly transfer-

[9] In France this would be the CFC (*Centre Français d'exploitation du droit de Copie*), a private association which has agreements on behalf of authors and publishing houses with a large number of institutions, including secondary schools [11] and universities [12][13][14] (with some recent exceptions for primary schools) in accordance with copyright law, Art. L. 122-10 : (L. n. 95-4 of January 3, 1995, art. 1). It is clear that this law primarily affects books, but the royalty fee is calculated on the basis of the number of pupils/students and not on the type of document photocopied, which could equally well be a journal. Neither should we forget that in the world of scientific publishing the revenue obtained by the author of a book is often, albeit not always, insignificant and that after a number of years books are no longer reprinted.

[10] One of the largest private university libraries in the world.

ring their copyright to private publishing houses.

In this respect there are a great many initiatives, including one from the very heart of the United States, a country that is hard to accuse of being prejudiced against private companies, whereby any work wholly financed by federal funds *cannot* be protected by *copyright* and automatically passes into public domain. Furthermore, another recent initiative, the so-called *Public Access to Science Act*[14], aims to extend this exclusion to any research work receiving significant funding from public sources.

It is easy to imagine a similar exclusion in other countries and not only the USA; in fact, in the UK this has already occurred and the copyright of such work resides with the British Crown.

■ **Very long-term archival:** the ideas of a unique identifier and very long-term archival are very closely linked in this immaterial world we are constructing at the moment. On the one hand, there is not much point in having a unique identifier of a work of which there is no copy; on the other, it is not very practical to have an unstructured mass of data in which it is impossible to locate a work by a unique identifier.

This is a problem that is not unique to scientific publications. National archives, the public documents of which in France are legally obliged to be preserved for an indeterminate amount of time[15], are faced with the same problem, and it would no doubt be possible to cooperate with them to find the most appropriate technical solutions (let us not forget that, according to French legislation, many scientific documents, such as doctoral theses, are considered to be public documents subject to national archival).

We would stress that, in spite of all the publication servers like ArXiv, very long-term archival is based on the mass duplication of publications, while the unique identifier is provided by the internal unique identifier in ArXiv plus the reference to ArXiv.

It is also worth stressing that the "online journal / printed paper journal" dichotomy that sometimes crops up in discussions about scientific publishing is gradually disappearing thanks to the dissemination of new technologies. There are now some marvellous devices on the market[16] which allow us to produce, on demand and instantly, whole printed books at a competitive price compared with traditional printing, if we limit ourselves to small print runs[17].

This opens up some interesting possibilities: if companies such as BooksJustBooks in the United States offer the general public the opportunity of printing quality books with short print runs at an unbeatable price, it is obvious that in fields like scientific publishing, in which print runs are often very small, we could think seriously about doing the same. If Donald Knuth has given us the means to almost effortlessly produce beautifully typeset scientific articles, printing on demand will now provide us with the means to print those articles at a low cost[18].

And if the combined machinery of a university, or a group of Universities, is not enough, there is still no need to contract the services of a 'publishing house', as a simple 'printer' can provide all the necessary services.

... and the need for a strong political will

Thus it would appear that everything is in place for an evolution towards a new world of scientific publishing; a natural and inexorable evolution towards freer and more open publishing.

But it is not that simple: there is still a tough nut left to crack, which is the existence of an increasingly important body of scientific work, the copyright of which is still being captured daily by private publishing houses. There is a pressing need to freely return this corpus to the community, a corpus which private publishing houses have misappropriated.

Make no mistake about it, this is a flagrant abuse and one which is too often forgotten. Take for example the case of the work of Ramanujan, that peerless mathematician who sadly died young in 1920, whose notebooks, containing a treasure trove of mathematical hypotheses that to this day are still not entirely elucidated, are published and sold in five volumes at the prohibitive price of more than 90 euros each[19]. What we need is for millions o copies to be published and distributed all over the globe in the hope that they will inspire a new Ramanujan.

As this is a huge legal problem, it is difficult to foresee a solution without a strong political from the Public Administrations will to reaffirm the priority of the general in-

[11] This does not prevent any number of revisions being made, but it must be possible to make a clear distinction between the article as it was published on its date of release and any subsequent altered versions.

[12] An example of this type of initiative can be found in [24], which proposes depositing a digital signature with copyright protected works.

[13] It is not a good idea to blindly adopt licences such as the *Free Documentation Licence*, which are appropriate for documentation but not for scientific works.

[14] See details in [25].

[15] As provided for in paragraph L. 212-1 of Book II, Title I, Chapter 2, of the Public Property Code published in the Official Gazette 46 of February 24, 2004, page 37048, text 3 [26][27], "*public archives, whoever they may be held by, must be preserved indefinitely* ".

[16] Xerox's DocuTech series was the pioneer but nowadays Xerox is no longer the only manufacturer to offer this type of solution.

[17] What is meant by "small" has changed over time, but at the time of writing this article "small" means around 400 copies, well over the print run of a great many specialized scientific works.

[18] Except for certain scientific fields that require colour printing, which is much more expensive.

terest over the private interests of this or that publishing house.

Because it is no longer possible to go on letting scientific journals and conference proceedings be published as if they were commercial works.

For this reason it is essential that politicians, and in particular politicians who have been researchers, take a close interest in this matter. But it must be clearly understood that we do not need the involvement of politicians in order to address simple commercial issues (the negotiation of subscription fees) or technical issues (the digitization of works or the creation of archives like ArXiv). What is the use of bringing subscription fees down sporadically when it is something the library federations can do for themselves? What is the use of proposing wonderful digital library projects[20] whose content, due to a preoccupation with "*respecting copyright*", would not be accessible, thereby violating one of the basic principles of libraries[21] ?

Where the intervention of politicians (French, European, and from all over the world) is indispensable and pressing is to regulate the basic issue of free access to the results of public research, something that will require a strong political will to be achieved.

Let us then call on our governments[22] to act without delay to:

■ Put a stop to the acquisition by publishing houses of copyrights on scientific works. This conjures up visions of a complex legal framework to prohibit the transfer of copyright to publishing houses or to convert such a transfer into a simple, non-exclusive transfer, but there is a much simpler, more effective and, better still, proven solution: we can follow the example of the United States that was mentioned earlier in this article. We propose that any article resulting from research work conducted by or for a Public Administration should pass automatically into the public domain (according to French law this would be equivalent to pledging the property rights, the only ones of interest to the parasites of the system, but not the moral rights, which would remain intact and are what interest the researchers: right of paternity, right of integrity of the work, ... and right of retraction). US journals explicitly provide for this case and neither US federal government officials nor British government employees are asked to transfer their copyright[23] .

The simple transposition to European law of the copyright exclusions that are applied to federal US government officials (and to British, Canadian, and New Zealander government employees) would be sufficient to prohibit the acquisition of rights on most of the research work performed in Europe, where scientific research is mostly public funded . A solution adapted to European law could certainly be considered, but what is absolutely clear is that Public Administrations should move fast to establish the rules.

■ Cancel the transfers of rights on the vast corpus of articles already existing; it is true that, in the case of obligatory transfers with no payment involved, or even a payment in the opposite direction, a could perfectly well declare these transfers null and void, but the issue is too important to let individual legal proceedings decide its fate.

■ Reinvest in research the public money that is now the squandered on paying the high price for limited access to knowledge that has already been paid for out of public funds.

There is no excuse for not acting, and every day lost is one day too many.

Translation by ***Steve Turpin***

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[20] See an example in [28].

[21] Actually the Google Print initiative only plans to show summaries of works still under copyright, particularly for scientific works.

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[23] See for example the IEEE's (*Institute of Electrical & Electronics Engineers*) *Copyright Transfer Form* [29].

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